

## REMARKS

### Status of claims

Applicants thank the Examiner for the consideration given to the present application. Claim 10 has been canceled without prejudice. New claim 16 has been added. Claims 1, 3, 4, 5, 6, 9, 13, 14, and 15 have been amended. Support for new claim 16 and these amendments are found in the specification and figures. No new matter has been added. Claims 1-6, 8, 9, and 12-16 are pending in the present application.

### Objection to the Claims

Claims 3 and 14 have been objected to because of the following informalities. Recitation of "group consisting of" should be followed "and" between last two groups. Accordingly, claims 3 and 14 have been amended to correct this informality.

### Rejections Under 35 USC §102 and §103

Claims 1-3, 5-6, 8-9 and 15 have been rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cannon et al (US 6,881,348). Claims 1-3, 5-6, 8-10 and 15 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell et al (US 6,827,854) in view of Hou et al (US 6,565,749). Claims 4 and 14 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell et al '854 in view of Hou et al as applied to claim 1 above, and further in view of Koslow (US 6,630,016). Claims 12-13 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell et al '854 in view of Hou et al as applied to claims 1 and 10, and further in view of Jagtoyen et al (US 2004/0040906). Applicants respectfully traverse the rejections set forth above.

To anticipate a claim under §102, each and every element of the claim must be found, either expressly or inherently described, in a single prior art reference. (Emphasis added, Verdegaal Bros., 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Also, in order to establish a prima facie case of obviousness under §103, the Examiner has the burden of showing, by reasoning or evidence, that: 1) there is some suggestion or motivation, either in the references themselves or in the knowledge available in the art, to modify that reference's teachings; 2) there

is a reasonable expectation on the part of one of ordinary skill in the art that the modification or combination has a reasonable expectation of success; and 3) the prior art references (or references when combined) teach or suggest all the claim limitations. (Emphasis added, MPEP §2145). This is not the case here.

Applicants' independent claim 1 recites a filter comprising, *inter alia*, a housing having an inlet and outlet and a filter material disposed within the housing and formed from mesoporous wood activated carbon filter particles coated with a cationic polymer, wherein the filter has a Filter Bacteria Log Removal of greater than 2 logs and a Filter Viruses Log Removal of greater than 1 log. Also, Applicants' independent claim 15 recites a filter comprising, *inter alia*, a housing having an inlet and outlet and a filter material disposed within the housing and comprising a plurality of mesoporous activated carbon filter particles and a binder, wherein at least a portion of the mesoporous activated carbon filter particles are coated with a cationic polymer, and wherein the filter has a Filter Bacteria Log Removal of greater than about 2 logs and a Filter Viruses Log Removal of greater than about 1 log. Finally, Applicants' independent claim 16 recites a filter comprising, *inter alia*, a housing having an inlet and outlet and a filter material disposed within the housing and formed from a plurality of mesoporous activated carbon filter particles coated with a cationic polymer, wherein the sum of the mesopore and the macropore volumes of the plurality of mesoporous activated carbon filter particles is greater than 0.3 mL/g, and wherein the filter has a Filter Bacteria Log Removal of greater than about 2 logs and a Filter Viruses Log Removal of greater than about 1 log.

As shown, all of Applicants' independent claims recite a filter material disposed in a housing having an inlet and an outlet. The Examiner asserts that Cannon et al. teach a filter material in a housing having an inlet and outlet. (Col. 2, lines 41-54; col. 9, lines 17-41). However, contrary to the Examiner's assertion, Applicants respectfully submit that Cannon et al. are silent regarding a housing for their filter material, let alone a housing having an inlet and outlet. Thus, Applicants respectfully submit that Cannon et al. do not teach or suggest a filter material in a housing having an inlet and outlet as recited in Applicants' claims and thus do not teach or every limitation of applicants' claims as required.

Moreover, the Examiner further asserts that the filter material of Cannon et al. is substantially identical to the filter material claimed; therefore, the filter material of Cannon et al. has inherent capabilities of claimed F-BLR and F-VLR. Applicants respectfully submit that Cannon et al.'s filter material is not substantially identical to the claimed filter material. First, claim 1 recites the filter material is formed from a plurality of mesoporous wood activated carbon filter particles. Applicants submit that Cannon et al. only teach their filter material being formed from either lignite<sup>1</sup> or bituminous coal. Table 2; col. 12, lines 1-5; Claim 1. In fact, Cannon et al. is void of any teaching, suggestion, or motivation of forming a filter from mesoporous wood activated carbon particles. As lignite or bituminous coal-based carbon particles, Cannon et al.'s filter particles have different surface area and pore volume parameters and properties than Applicants' recited wood activated carbon filter particles. Thus, having different filter particle parameters and properties, Cannon et al.'s lignite/bituminous coal-based carbon particle filter structure, in contrast to the Examiner's assertion, is not similar, let alone substantially identical to the claimed wood activated filter structure; therefore, Cannon et al.'s filter does not explicitly or inherently teach, suggest, or motivate a mesoporous wood activated filter having the F-BLR and F-VLR values as recited in Applicants' claim 1.

Second, claim 15 recites the filter material of the present invention comprises both mesoporous activated carbon filter particles and a binder binding the particles. *See* Examples 3 and 4, p. 32, line 4 - p. 33, line 13. In contrast, Cannon et al. teach loose lignite or bituminous coal activated coal particles, but are silent as to any teaching, motivation, or suggestion of a binder binding their filter particles, let alone a filter material comprising mesoporous activated carbon filter particles bound together with a binder such that such the filter has a F-BLR and F-VLR as recited in claim 15. Lacking a binder holding the coal-based activated carbons particles together, Cannon et al.'s loose filter particles do not have the same or similar filter geometry, inter-particle spacing, and other filter properties as Applicants' claimed filter comprising a filter material including both mesoporous activated carbon filter particles and a binder binding the

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<sup>1</sup> **Lignite** is a type of coal that contains a lot of moisture and ash and breaks apart easily. Of the four types, **lignite** has the lowest **carbon** content and heating value. Also called brown coal, lignite is used mainly at electricity-generating plants. American Coal Foundation, [www.teachcoal.org/glossary.html](http://www.teachcoal.org/glossary.html).

particles. Thus, Cannon et al.'s filter particles are not similar, let alone substantially identical, and thus would not have the same inherent capabilities of F-BLR and F-VLR. Therefore, Applicants respectfully submit that Cannon et al. do not teach, suggest, or motivate, explicitly or inherently, Applicants' filter comprising both mesoporous activated carbon filter particles and a binder, wherein the filter has the recited F-BLR and F-VLR values.

Third, claim 16 recites the filter material of the present invention is formed from mesoporous activated carbon filter particles, wherein the filter material has a sum of mesopore and macropore volumes of greater than 0.3 mL/g. Cannon et al. only teach activated carbon particles having a mesopore volume of 0.3 mL/g or less. (*See* Cannon et al.'s Table 1 and Col. 10, lines 45-58). In fact, Cannon et. al. is completely void of any teaching or suggestion as to the macropore volume or total pore volume of their lignite or bituminous coal-based carbon particles. Thus, Applicants respectfully submit that Cannon et al. do not teach or suggest a mesoporous filter material having a sum of mesopore and macropore volumes of greater than 0.3 mL/g. Missing any teaching or suggestion as to mesoporous activated carbon particles having a sum of mesopore and macropore volumes of greater than 0.3 mL/g, Applicants submit that Cannon et al.'s filter particles have a different blend of mesopore, macropore, and micropore volumes and thus different surface area properties as well. Therefore, Applicants' respectfully submit that Cannon et al.'s filter particles do not teach or suggest a filter structure that is similar or substantially identical to Applicants' recited filter structure in claim 16. Accordingly, Cannon et al.'s filter material does not explicitly or inherently teach or suggest the claimed filter having the recited F-BLR and F-VLR capabilities.

Additionally, Cannon et al. teach their lignite or bituminous coal-based carbon particles can remove perchlorate from water. However, Cannon et al. never teach, suggest, or provide any motivation that the lignite or bituminous coal-based carbon particles can remove bacteria and viruses from water as recited in all of the Applicants' claims. Thus, Applicants respectfully submit that Cannon et al. not only teach a different filter structure, but also lacks any teaching or suggestion that this different filter can remove bacteria or viruses. Therefore, Applicants also submit that Cannon et al. do not, explicitly or inherently, teach or suggest every limitation of Applicants' claims 1, 15, and 16. Accordingly, Applicants respectfully request the rejection of

these claims under 35 U.S.C. 103 to be withdrawn. As claims 2-6, 8, 9, and 12-14 depend from either claims 1 or 15, Applicants request the rejection of these claims be withdrawn as well.

The Examiner also asserted that Mitchell et al. teach all of Applicants' claim limitations except a cationic coating on the mesoporous activated carbon particles and that Hou et al. teach a microorganism filter comprising a cationic polymer coated onto the filter substrate. Applicants respectfully submit that neither Mitchell et al. nor Hou et al., singularly or in combination, teach all of the limitations in Applicants' claims 1, 15, and 16. As set forth above, claim 1 recites a filter material formed from a plurality of mesoporous wood activated carbon filter particles, claim 15 recites a filter material comprising mesoporous activated carbon filter particles and a binder binding the particles together, and claim 16 recites a filter material formed from mesoporous activated carbon filter particles wherein the filter material has a sum of mesopore and macropore volumes of greater than 0.3 mL/g. All three claims further recite that the filters have F-BLR and F-VLR values.

With respect to all three of Applicants' independent claims, the mesoporous carbon filter particles are activated. In contrast, Mitchell et al. teaches the filter particles that form the filter material comprise a variety of non-wood particles such as "glass fibers, ceramic fibers, carbon fibers, and copper granules," these filter particles are coated with Lignosulfonate, and then the Lignosulfonate coating, and not the filter particles, is what is activated. Col. 4, lines 13-15 and lines 50-65. No where do Mitchell et al. teach or suggest mesoporous activated carbon filter particles; Mitchell et al. only teaches non-activated filter particles coated with an activated lignosulfonate coating. In addition, Hou et al., Koslow, and Jagtoyen are all silent as to a filter material made from mesoporous activated carbon filter particles. Thus, Applicants respectfully submit that Mitchell et al.'s activated lignosulfonate coating is structurally different from Applicants' recited mesoporous activated carbon filter particles. Since Mitchell et al. teach a different filter material structure and Hou et al., Koslow, and Jagtoyen are all silent regarding mesoporous activated carbon filter particles, then none of the references, singularly or in combination, teach or suggest a mesoporous activated carbon filter material having the claimed F-BLR and F-VLR values as recited in all three claims.

Also, claim 1 recites mesoporous wood activated carbon filter particles. In contrast, neither Mitchell et al. nor Hou et al., singularly or in combination, teach or suggest a filter formed from filter particles comprising mesoporous wood carbon, let alone mesoporous wood activated carbon filter particles. Moreover, claim 15 recites a filter material comprising both mesoporous activated carbon filter particles and a binder binding the particles together. Both Mitchell et al. and Hou et al. are void of any teaching of forming a filter from mesoporous activated carbon filter particles and a binder. Further, claim 16 recites a filter material formed from mesoporous activated carbon filter particles, wherein the sum of the mesopore and macropore volumes are greater than 0.3 mL/g. Again, Mitchell et al. teaches non-activated filter particles coated with an activated lignosulfonate coating, which is structurally different from the claimed mesoporous activated carbon filter particles. Thus, none of the references, singularly or in combination teach or suggest a mesoporous activated carbon filter particles wherein the sum of mesopore and macropore volumes is greater than 0.3 mL/g.

Therefore, Applicants' suggest that Mitchell et al.'s filter material comprising non-wood filter particles coated with an activated Lignosulfonate coating has a substantially different structure than Applicants' claimed filter material comprising mesoporous wood activated carbon filter particles (claim 1), mesoporous activated carbon filter particles and a binder (claim 15), or mesoporous activated carbon filter particles having a sum of mesopore and macropore volumes of greater than 0.3 mL/g. Therefore, since Mitchell et al. teach a substantially different filter material structure compared to the claimed filter structure, Mitchell et al., singularly or in combination with Hou et al., Koslow, Jagtoyen, or Cannon et al., do not teach or suggest, explicitly or inherently, a mesoporous activated carbon filter having Applicants' claimed F-BLR and F-VLR values. Accordingly, Applicants respectfully request the rejections of claims 1 and 15 under 35 U.S.C. 102 and 103 be withdrawn. As claims 2-6, 8, 9, and 12-14 depend from claim 1 or 15, Applicants respectfully request the rejection of these claims under 35 U.S.C. 102 and 103 be withdrawn as well.

Serial No. 10/705,174  
Response date February 20, 2007  
Reply to Office Action of November 17, 2006

*Rejections Under Non-Statutory Obviousness-Type Double Patenting*

Claims 1-6, 9-10, 12 and 14-15 have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4-12 and 16 of copending Application No. 11/101,130. Claims 1-6, 9-10, 12 and 14-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4-12 and 16 of copending Application No. 11/119,120. Applicants respectfully traverse these rejections because the claims of the present invention are patentably distinct from the claims of the cited patent applications.

However, to simplify the issues in the present application, Applicants respectfully submit that copending Application No. 11/101,130 has been expressly abandoned in accordance with 37 C.F.R. 1.138 as evidenced by the Expressed Abandonment dated January 4, 2007, which was submitted in the copending Application No. 11/101,130, and enclosed herein. Moreover, Applicants concurrently submit with this response the appropriate Terminal Disclaimer over the one (1) copending application, 11/119,120. In submitting this Terminal Disclaimer, Applicants state for the record that this Disclaimer is not an admission of obviousness in view of the cited U.S. application. *Quad. Env'tl. Corp. v. Union San. Dist.*, 20 USPQ2d 1392 (Fed. Cir. 1991). Also enclosed herewith, Applicants submit a Statement under 37 CFR 3.73(b) and an Assignment showing that the present Application (Appl. No. 11/705,174) and copending U.S. Patent Applications No. 11/119,120 are commonly owned by Pur Water Purification Products, Inc.

Applicants therefore respectfully request the withdrawal of the obviousness-double patenting rejections of claims 1-6, 9-10, 12 and 14-15 over copending U.S. Patent Applications Nos. 11/101,130 and 11/119,120.

Accordingly, Applicants respectfully request the withdrawal of the obviousness-double patenting rejections.

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### CONCLUSION

Applicants respectfully submit that the present application is in condition for allowance. The Examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,  
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